Montana
Diabetes Program
Chronic Disease Prevention & Health Promotion Bureau

The Montana Diabetes Program's Use of MHDDS Data for Hospitalizations and Emergency Department Visits Among Montanans with Diabetes

Sarah Brokaw

MHDDS Users Group Meeting

March 19, 2015

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Outline

- Process overview for data reporting and use
- Program use of data
  - Internal Program Use
  - Diabetes Advisory Coalition
  - Surveillance Report
  - CDC Grant Reporting
- Outcomes
- Conclusions

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Process Overview for Data Reporting and Use

Hospitals

MHA AN ASSOCIATION OF MONTANA HEALTH CARE PROVIDERS

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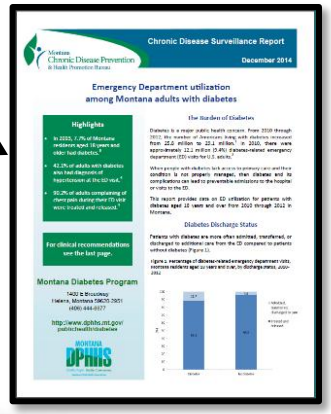
Office of Epidemiology and Scientific Support

Montana Diabetes Program
Chronic Disease Prevention & Health Promotion Bureau

MT Diabetes Advisory Coalition

DEPARTMENT OF HEALTH & HUMAN SERVICES · USA CDC


Chronic Disease Surveillance Report
December 2014
Emergency Department utilization among Montana adults with diabetes
Highlights
The Burden of Diabetes
Diabetes Discharge Status
Montana Diabetes Program

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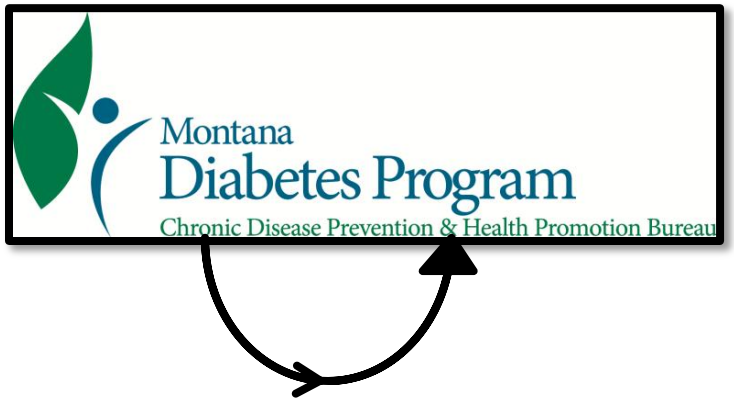
Internal Program Use

- Generated questions and queried dataset.
- Had discussions about results.
- Application of results
  - How do data relate to diabetes education?



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Diabetes Advisory Coalition

- January 2014 meeting
  - Discussed investigating MHDDS data for people with diabetes.
  - Showed existing data from MHDDS report *Montana Prevention Quality Indicators.*
  - Prioritized our data analysis so that we pull useful information, ask the right questions for the data we have access to, and consider implications.

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Diabetes Advisory Coalition

- April 2014 meeting
  - Presented on hospital admissions and ED visits for people with diabetes.
  - Explained data available, definitions of variables and codes, and limitations.
  - Presented graphs and tables of outcomes.
  - Made conclusions.

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Outcomes

- Trends
- Montana vs. US
- Prevention quality indicators (complications)
- Diabetes manifestations (type 1, type 2)
- Comorbidities
- Age
- Sex
- Length of stay
- Source of admission
- Discharge status
- Payor
- Charges

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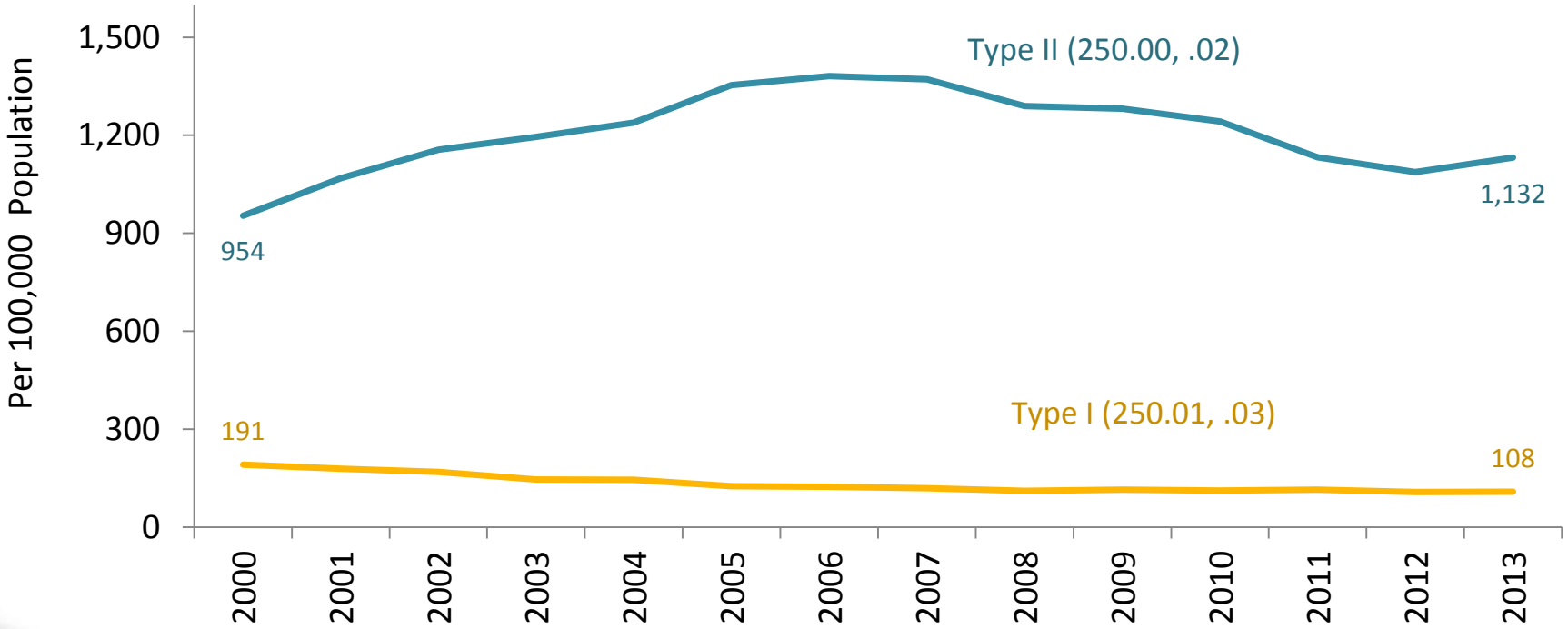
Diabetes Hospitalizations Rates, Montana Residents, 2000-2013



Primary or Secondary Diagnosis

Data Source: Montana Hospital Association.

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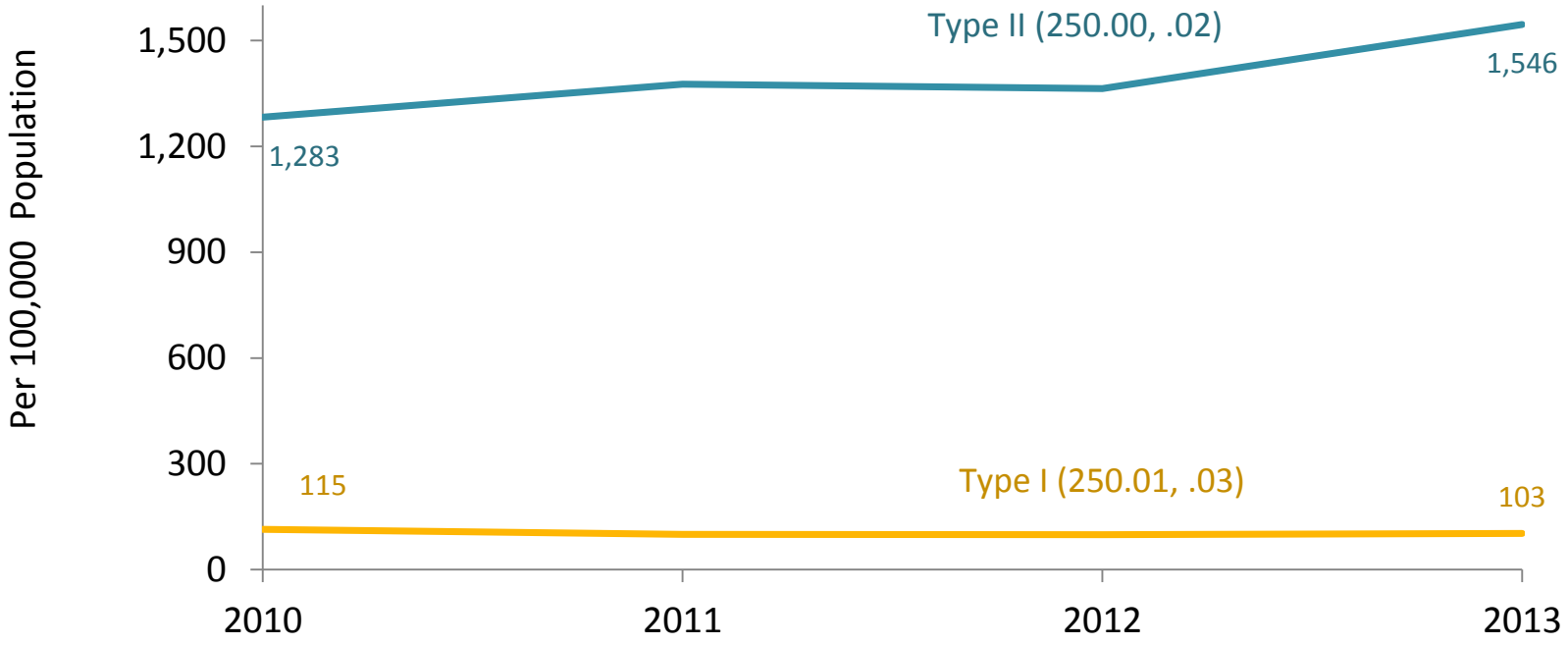
Diabetes ED Visits Rates, Montana Residents, 2010-2013



Primary or Secondary Diagnosis

Data Source: Montana Hospital Association

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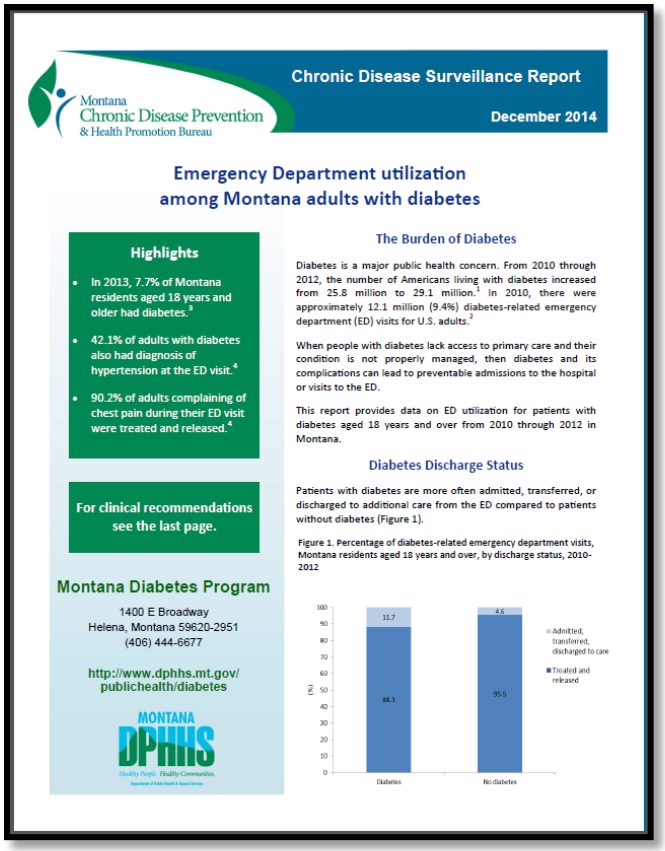
Surveillance Report

- Major Findings
  - Burden
  - Discharge status
  - Diagnosis
  - Characteristics (age, sex, residence)
  - Complications
  - Estimated cost
- Highlighted statistics
- Conclusions
- Clinical recommendations



Montana Chronic Disease Prevention & Health Promotion Bureau

Chronic Disease Surveillance Report

December 2014

Emergency Department utilization among Montana adults with diabetes

Highlights

- In 2013, 7.7% of Montana residents aged 18 years and older had diabetes.[3]
- 42.1% of adults with diabetes also had diagnosis of hypertension at the ED visit.[4]
- 90.2% of adults complaining of chest pain during their ED visit were treated and released.[4]

For clinical recommendations see the last page.

Montana Diabetes Program

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http://www.dphhs.mt.gov/publichealth/diabetes

The Burden of Diabetes

Diabetes is a major public health concern. From 2010 through 2012, the number of Americans living with diabetes increased from 25.8 million to 29.1 million.[1] In 2010, there were approximately 12.1 million (9.4%) diabetes-related emergency department (ED) visits for U.S. adults.[2]

When people with diabetes lack access to primary care and their condition is not properly managed, then diabetes and its complications can lead to preventable admissions to the hospital or visits to the ED.

This report provides data on ED utilization for patients with diabetes aged 18 years and over from 2010 through 2012 in Montana.

Diabetes Discharge Status

Patients with diabetes are more often admitted, transferred, or discharged to additional care from the ED compared to patients without diabetes (Figure 1).

Figure 1. Percentage of diabetes-related emergency department visits, Montana residents aged 18 years and over, by discharge status, 2010-2012

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CDC Grant Reporting

- Performance measure:
  - Age-adjusted hospital discharge rate for diabetes as any-listed diagnosis per 1,000 persons with diabetes

Baseline 2011	[Applied] 2012	Year 1 2013	Year 2 2014	Year 3 2015 target	Year 4 2016 target	Year 5 2017 target
10.7%	10.0%	10.3%	10.3%	9.9%	8.8%	8.0%

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Conclusions

- Since 2000, Montana's diabetes hospitalization rates have increased for people with type 2 diabetes, but decreased for people with type 1 diabetes.
- The prevalence of short-term complications of diabetes for children is double the national rate.
- From research we know that individuals with diabetes have higher rates of hospitalization and hospital care compared with persons without diabetes.[1]
- Preventing the complications related to diabetes that result in hospitalization and ED visits will improve their quality of life and could have a great impact on the resources of a health care system.

1. Ronald E. Aubert, Linda S. Geiss, "*Diabetes-Related Hospitalization and Hospital Utilization*"

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Clinical Recommendations

- Implement a coordinated care team, such as a patient-centered medical home model, to provide multidisciplinary support for patients with diabetes.
- For patients with diabetes who have been hospitalized, ensure that the care transition includes a referral to Diabetes Self-Management Education and Support (DSME/S) to help avoid a preventable readmission or another emergency event.
- Make a routine referral for DSME/S, especially for Medicare beneficiaries to promote the utilization of DSME/S benefit.
- During patient follow-up appointments and with the support of pharmacists, answer questions about properly taking prescribed medications and address barriers to medication adherence.

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Thank you!

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Supplemental Slides

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Trends in Rates

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Prevention quality indicators (complications)

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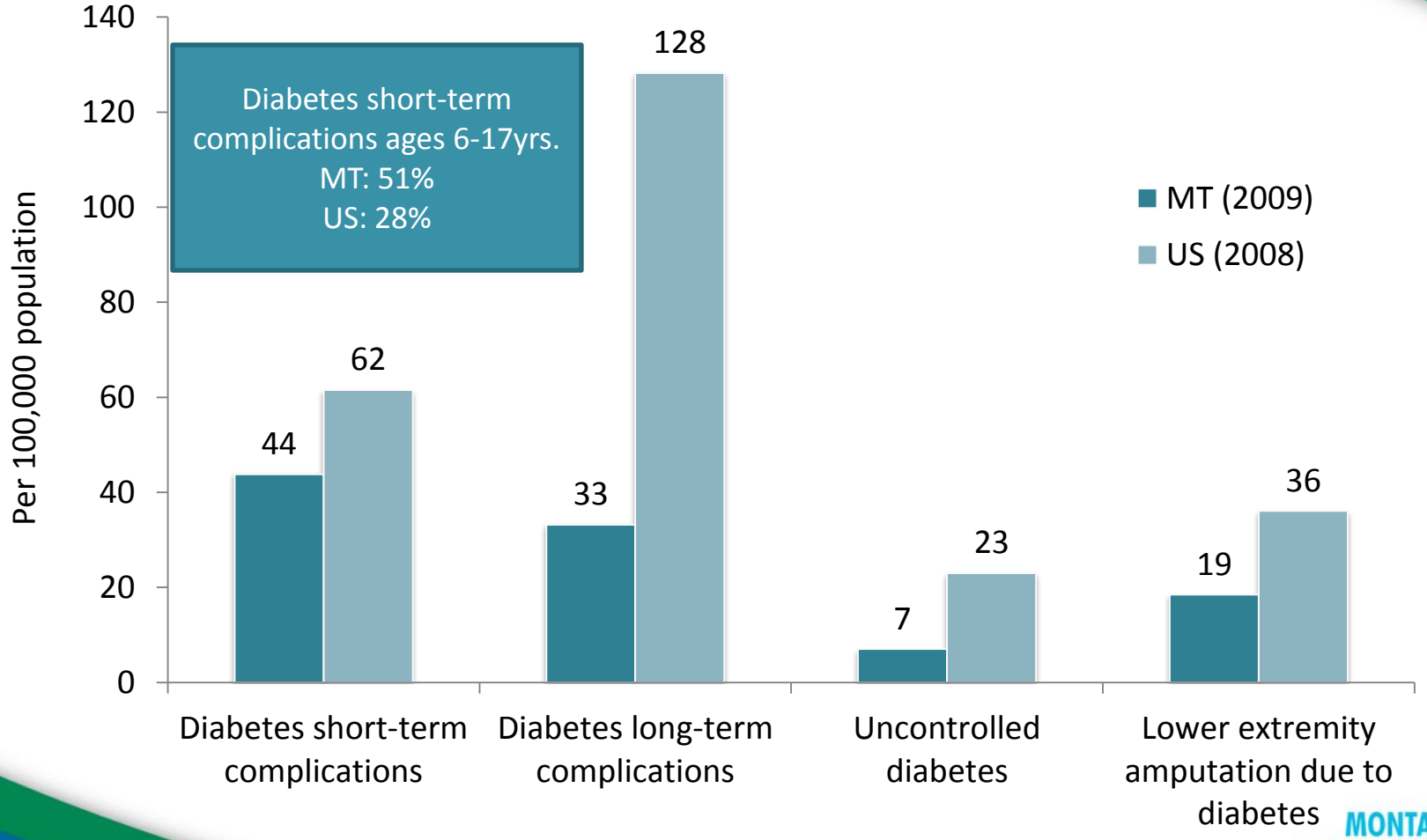
Rates for Diabetes Prevention Quality Indicators, Montana Compared to the US, 18 years and older,



Data Source: Montana Hospital Association; limited to reporting Montana hospitals, Agency for Health Research and Quality.
Information extracted from the Montana Prevention Quality Indicators 2000-2009, March 2011.

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Comorbidities

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Diabetes Top 3 Comorbidities, Hospitalizations and Emergency Department Visits, Montana Residents, 2010-2012

Hospital Discharge

Complication	%
Diabetes Type II (250.00)	9
Osteoarthrosis and allied disorders (715.00)	5
Heart failure (428.00)	4

Emergency Department

Complication	%
Symptoms involving respiratory system and other chest symptoms (786.00)	10
Diabetes Type II (250.00)	10
Other symptoms involving abdomen and pelvis (789)	5

Primary or Secondary Diagnosis.
Data Source: Montana Hospital Association; limited to reporting Montana hospitals

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Age

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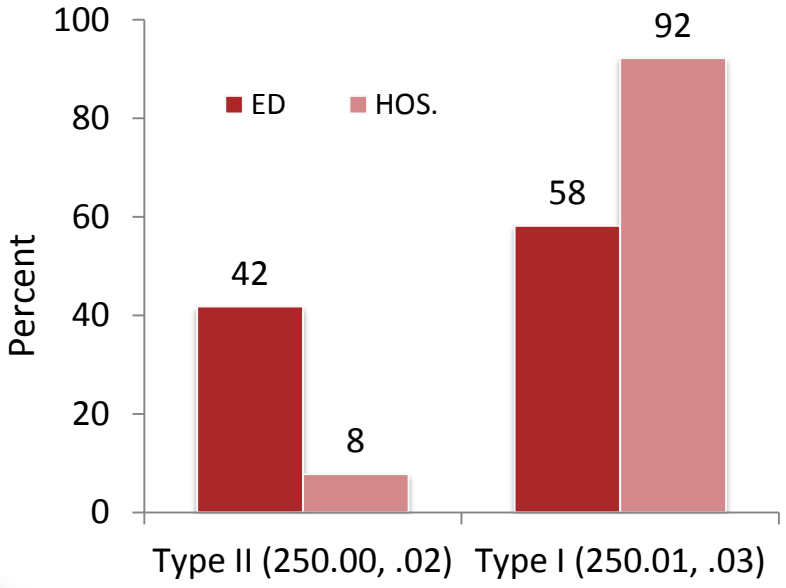
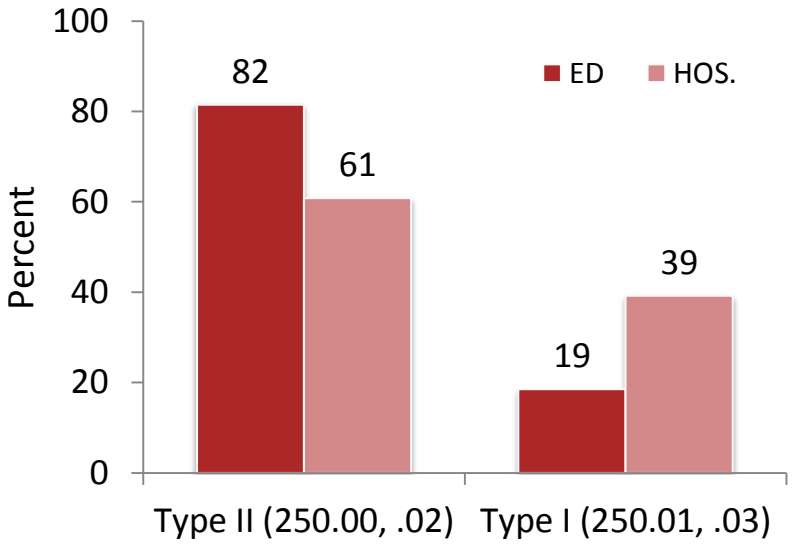
Diabetes Hospitalizations and Emergency Department Visits by Age Groups, Montana Residents, 2010-2012

0-17 years



18-44 years



Primary or Secondary Diagnosis.
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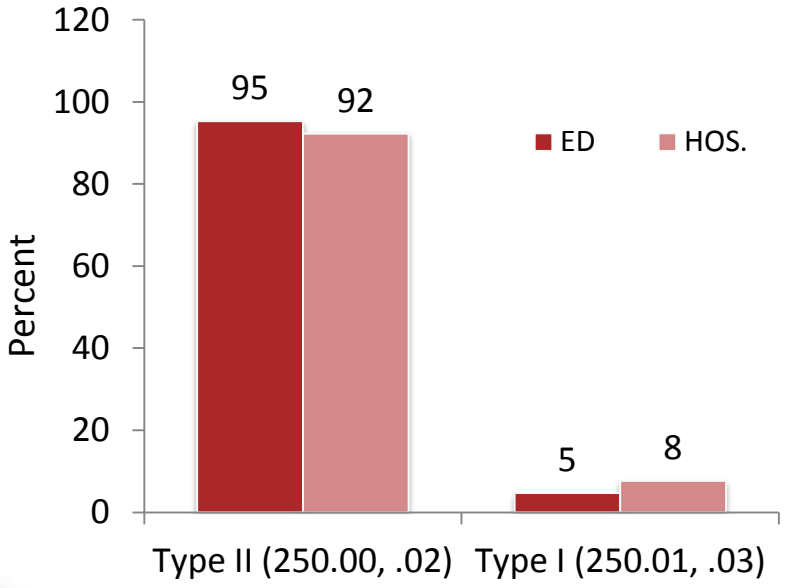
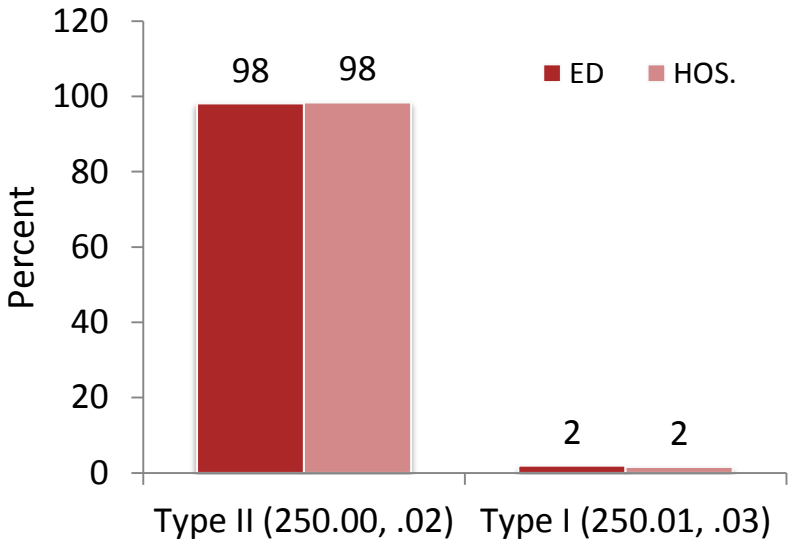
Diabetes Hospitalizations and Emergency Department Visits by Age Groups, Montana Residents, 2010-2012

45-64 years



65+ years



Primary or Secondary Diagnosis.
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Complications and Age

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Diabetes Manifestations Hospital Discharge and Emergency Department Visits, Montana Residents, 2010-2012

Hospitalizations	0-17 yrs.	18-44 yrs.	45-64 yrs.	65+ yrs.
Diabetes without mention of complications (250.0)	12.0%	2.4%	0.5%	0.2%
Diabetes with ketoacidosis (250.1)	60.0%	21.4%	3.2%	0.5%
Emergency Department Visits				
Diabetes without mention of complications (250.0)	77.9%	86.2%	88.7%	90.3%
Diabetes with ketoacidosis (250.1)	12.0%	2.4%	0.5%	0.2%

Primary or Secondary Diagnosis.
Data Source: Montana Hospital Association; limited to reporting Montana hospitals

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Diabetes Type, Complications, Age, Sex, Payer

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Diabetes Hospital Discharge and Emergency Department Visits, Montana Residents, 2010-2012

Hospital Discharge

	Type II (250.00, .02)	Type I (250.01, .03)
Age, average	67 yrs.	38 yrs.
Female	50%	54%
Payer:		
Commercial	27%	38%
Medicare	57%	24%
Medicaid	6%	17%

Emergency Department

	Type II (250.00, .02)	Type I (250.01, .03)
Age, average	61 yrs.	38 yrs.
Female	53%	54%
Payer:		
Commercial	31%	43%
Medicare	45%	20%
Medicaid	10%	19%

Primary or Secondary Diagnosis.
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Diabetes Hospital Discharge and Emergency Department Visits, Montana Residents, 2010-2012

Hospital Discharge

	Type I + ketoacidosis (250.11, .13)	Type II + hyperosmolarity (250.20, .22)
Age, average	30 yrs.	61 yrs.
Female	56%	38%
Payer:		
Commercial	39%	22%
Medicare	13%	44%
Medicaid	21%	19%

Emergency Department

	Type I + ketoacidosis (250.11, .13)	Type II + hyperosmolarity (250.20, .22)
Age, average	29 yrs.	52 yrs.
Female	61%	45%
Payer:		
Commercial	41%	19%
Medicare	13%	39%
Medicaid	24%	13%

Primary or Secondary Diagnosis.
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Length of Stay, Source of Admission, Discharge Status

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Diabetes Hospital Stay, Montana Residents, 2010-2012

Average Length of Stay:

- 4.0 days for Type II (250.00, .02)
- 3.6 days for Type I (250.01, .03)
- 3.0 days for Type I with ketoacidosis (250.11, .13)
- 4.3 days Type II with hyperosmolarity (250.20, .22)

Primary or Secondary Diagnosis.
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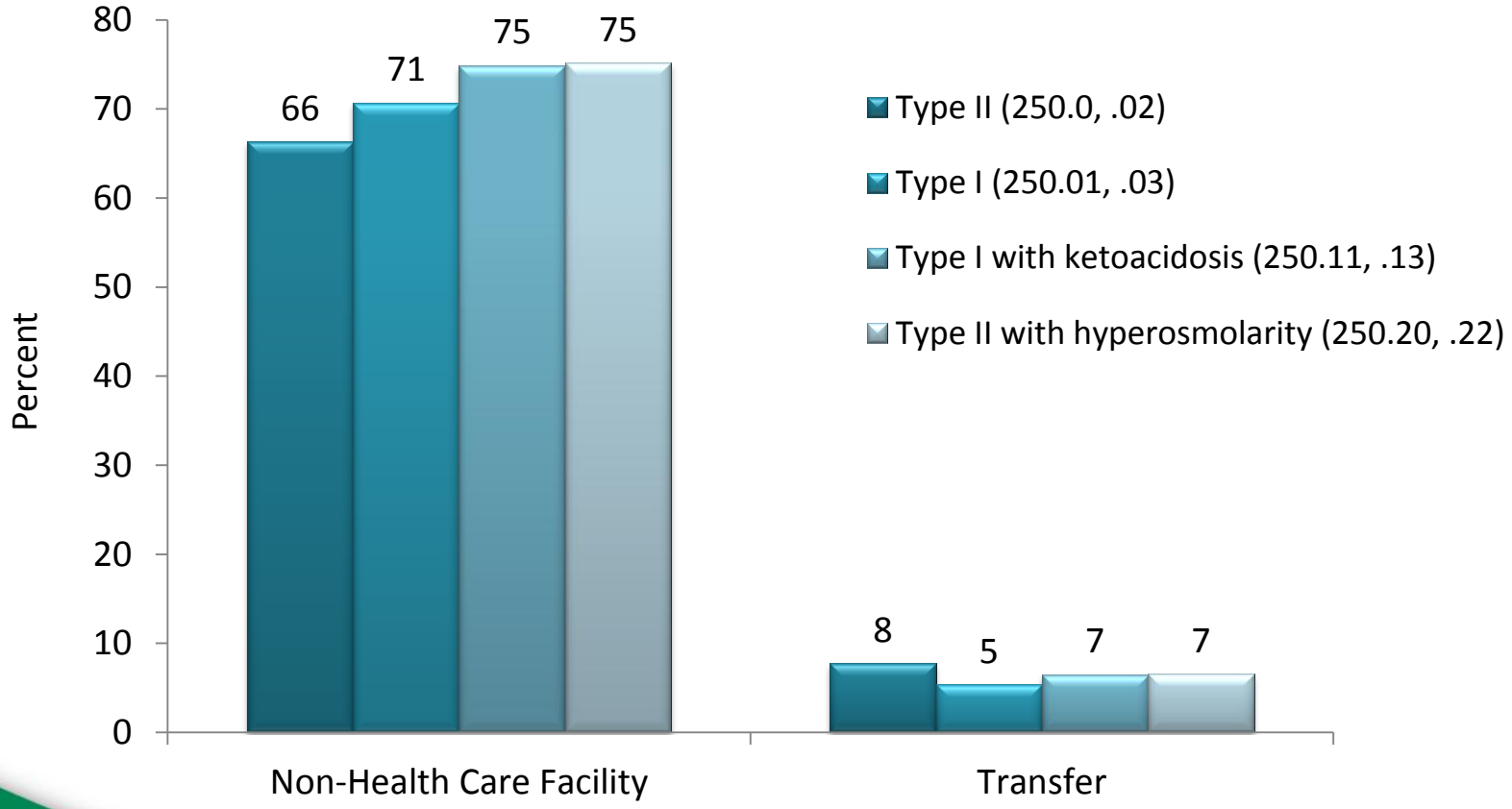
Diabetes Hospitalizations Source of Admission*, Montana Residents, July, 2010- December, 2012



*Effective July 1, 2010, admission source changed to point of origin.
Primary or Secondary Diagnosis.
Data Source: Montana Hospital Association; limited to reporting Montana hospitals

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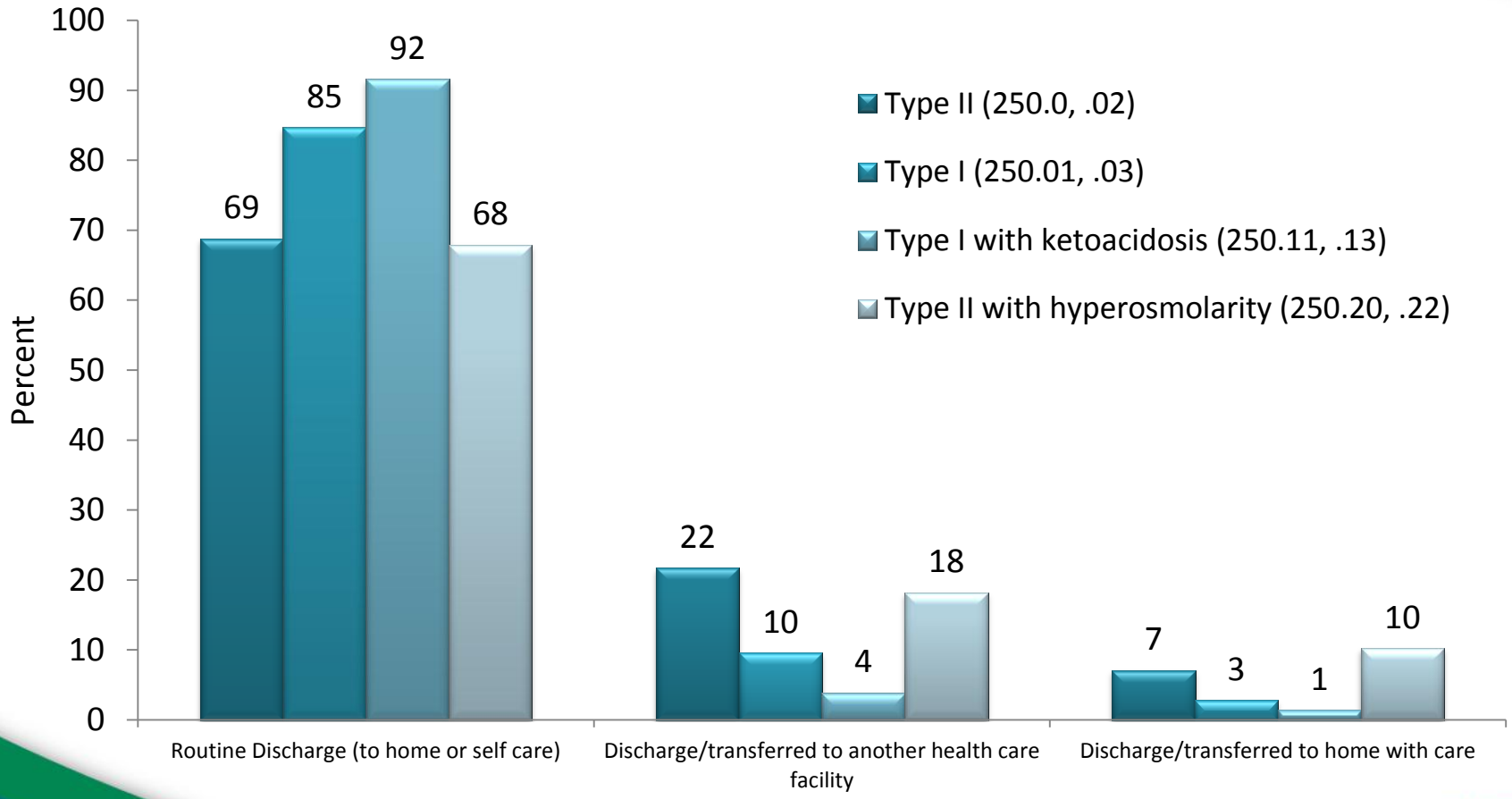
Diabetes Hospitalizations Discharge Status, Montana Residents, 2010-2012



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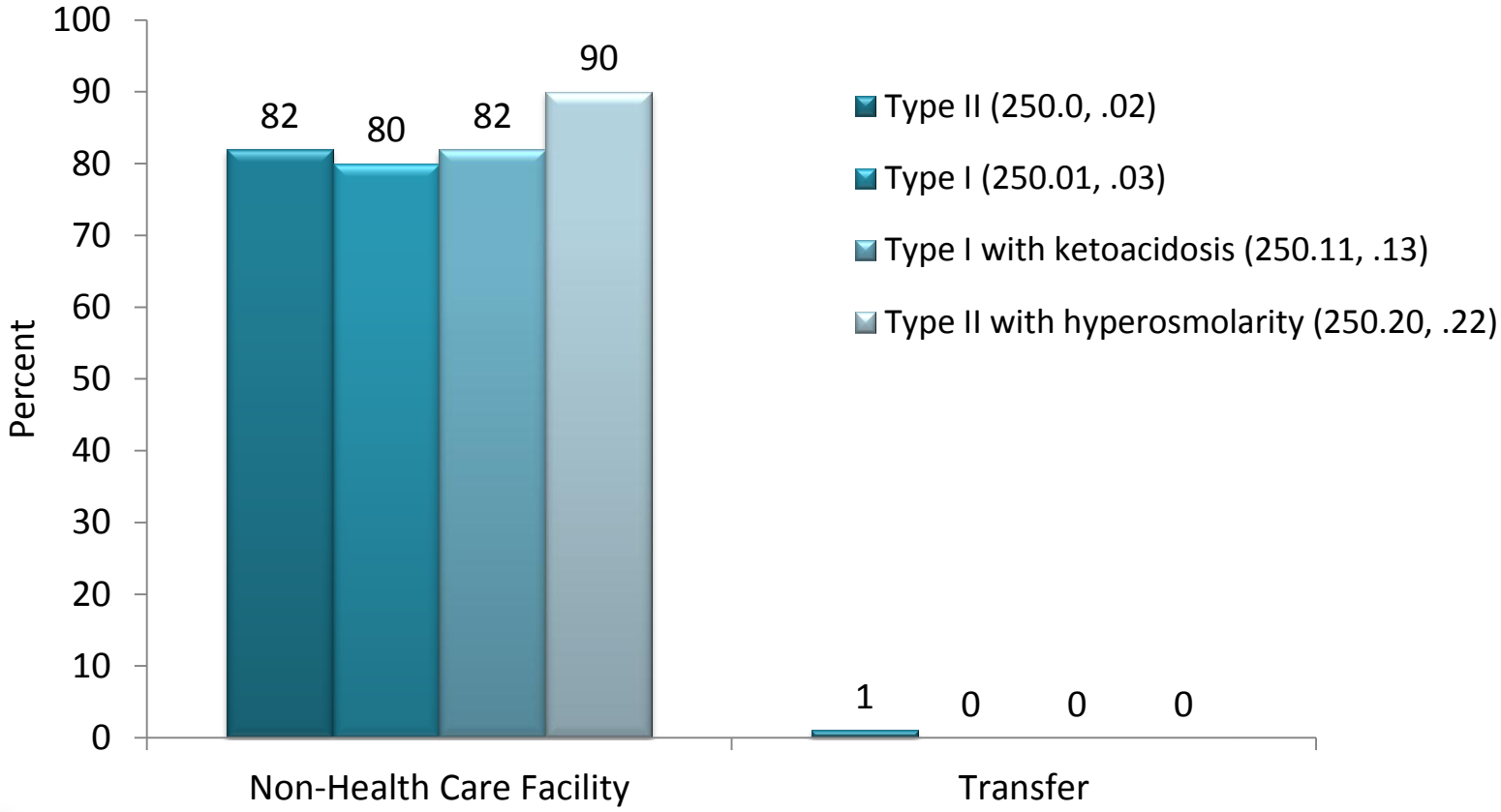
Diabetes Emergency Department Visits Source of Admission*, Montana Residents, July, 2010-December, 2012



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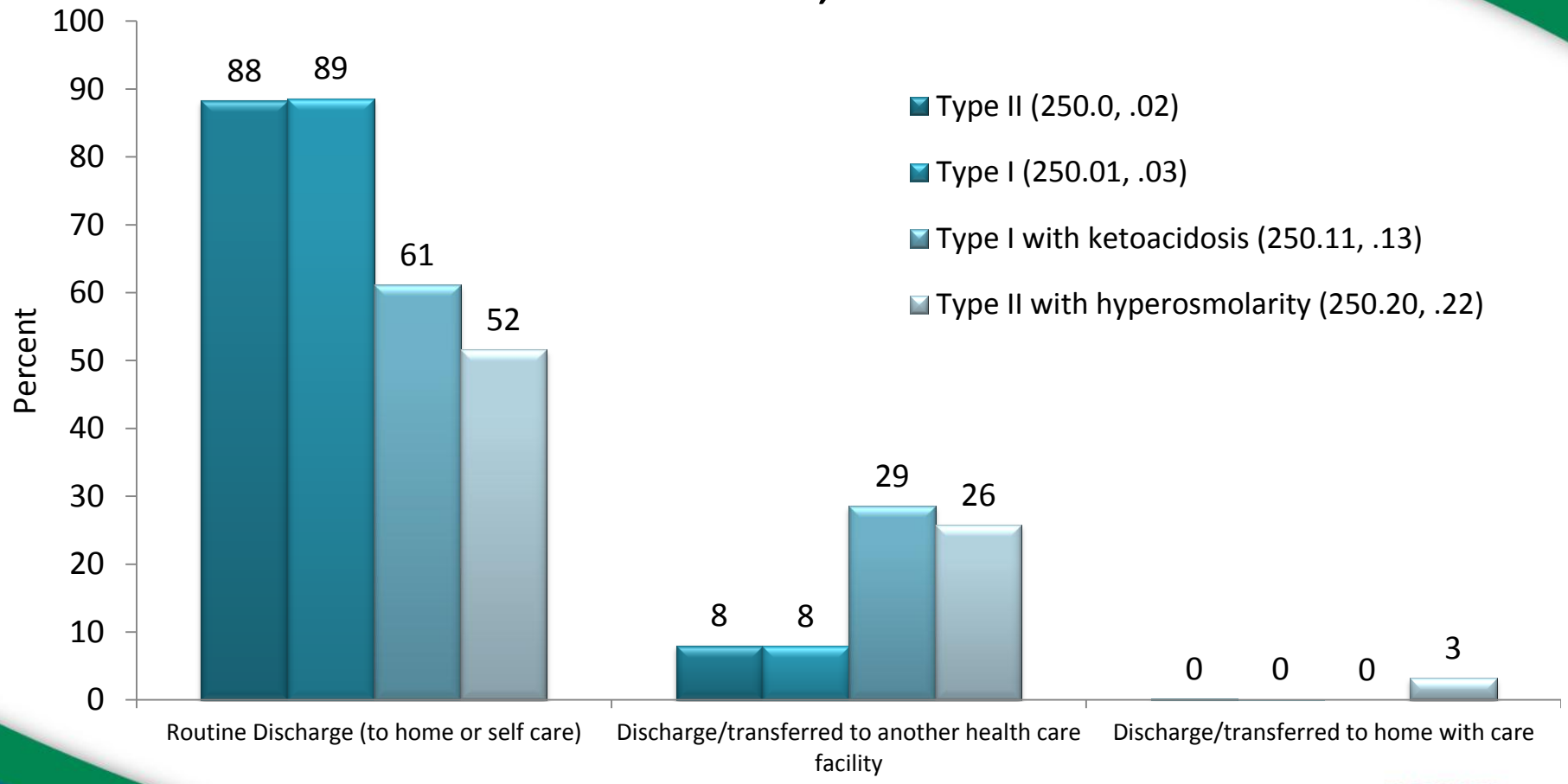
Diabetes Emergency Department Visits Discharge Status, Montana Residents, 2010-2012



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Payer, Cost

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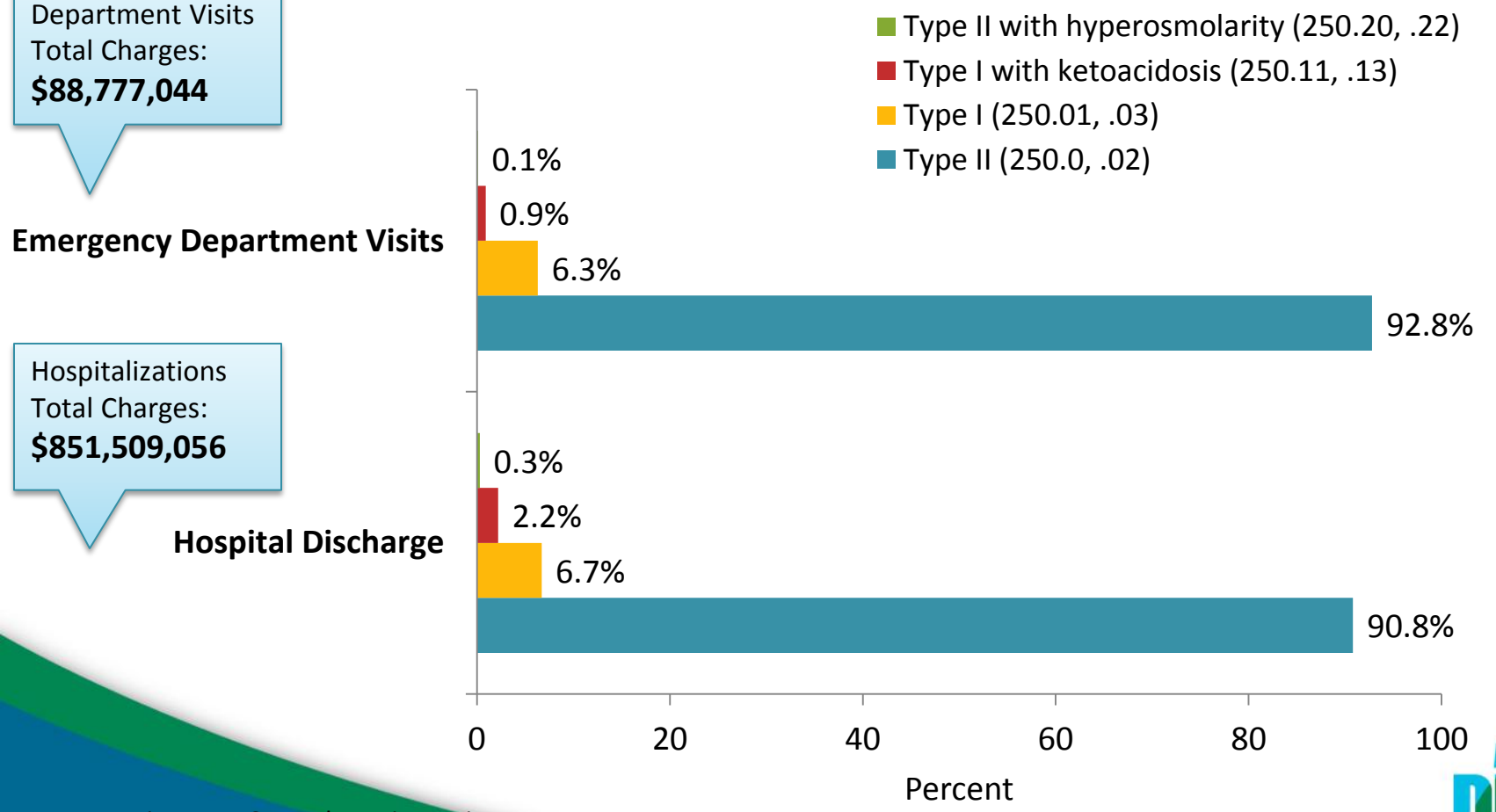
Charges for Diabetes Hospitalizations and Emergency Department Visits, Montana Residents, 2010-2012

Emergency Department Visits Total Charges: **$88,777,044**

Hospitalizations Total Charges: **$851,509,056**



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